THE POTENTIAL ROLE OF FARM TREES IN REGULATING WATER FLOW AND QUALITY

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Recent flood events and new research initiatives have focused attention on the potential role of farm trees for ameliorating flood runoff generation in headwater catchments. Agricultural practices and soil structural degradation in these areas have come under particularly close scrutiny. Increases in sheep numbers and animal weight have been implicated in reduced infiltration rates of water into permanent grassland. However, there is evidence that infiltration rates in areas of grassland which have been fenced and planted with trees are up to 60 times greater than in adjacent pasture. This improvement in soil hydrology is seen in tree plantings as young as 2 years old. Much research has been conducted in headwater catchments dominated by plantation coniferous forestry and the environmental impacts of these systems are now quite well understood. In contrast, there is relatively little information about the hydrological effects of farm woodlands in an upland setting. New research funded under the Flood Risk Management Research Consortium will go some way to addressing this deficiency. There is a need to integrate work on physical hydrology with effects on nutrient dynamics and some key questions remain to be answered on the evaporation of water from small blocks of broadleaf woodland where edge effects are potentially large.